

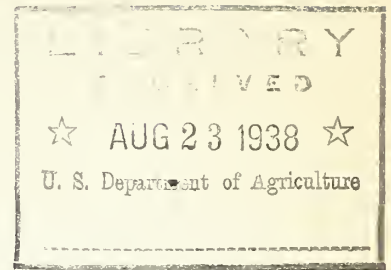
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# PAPER FROM WOOD PULP

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UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
FOREST PRODUCTS LABORATORY  
Madison, Wisconsin

In Cooperation with the University of Wisconsin

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## PAPER FROM WOOD PULP

An interview between Dr. Carleton E. Curran, Chief of the Pulp and Paper Division of the Forest Products Laboratory, United States Forest Service, Madison, Wisconsin, and Mr. Roen, NBC announcer, broadcast Friday, July 29, 1938, during the Department period of the National Farm and Home Hour.

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JOHN BAKER: Today we're going to hear a paper story from the Forest Products Laboratory, Madison, Wisconsin. Paper is one of the richest gifts the forests have made to modern civilization. Paper carries our thoughts, in writing and printing. It helps educate our children. It wraps our goods. It records our obligations and even pays our bills. Now we're going to hear an authority tell us how paper is made, from wood pulp. Are you ready, Mr. Roen?

ROEN: We are ready, John Baker. By we, I mean Dr. Carleton E. Curran, Chief of the Pulp and Paper Division of the Forest Products Laboratory, Madison, Wisconsin -- and Yours Truly. Yours Truly isn't much of an authority on paper yet, but he has ambitions. Doctor Curran, I have here a sheet of typewriter paper, the brown paper bag I brought my lunch in, a newspaper, a magazine, and a book.

CURRAN: That's a mighty slim start, Mr. Roen.

ROEN: (SURPRISED) Why, isn't this a fairly typical collection of what paper is used for?

CURRAN: No. I don't like to disappoint you, but your collection is entirely inadequate.

ROEN: Well, what should I add -- to show the uses of paper?

CURRAN: Oh, besides books, magazines, and newspapers, you might have shipping containers, cordage, rugs, mats, felts, pails and bottles, surgical dressings, artificial leather --

ROEN: What's that?

CURRAN: Artificial leather, suitcases, cups, plates, forks, spoons, napkins, towels, handkerchiefs, hats, dresses, underwear.

ROEN: I give up, Doctor Curran. I started out to learn to be an authority on paper, but I guess I'll just have to stick to radio.

CURRAN: Oh don't give up -- you can learn.



ROEN: Might as well learn from the ground up. Or rather from the soil, that produces our forests, that produce -- how much of our paper?

CURRAN: Well, at least nine-tenths of it. In general, wood pulp is by far the most important raw material for paper.

ROEN: Isn't paper from wood a very modern development?

CURRAN: Comparatively so, as we know it. Wood pulp has made paper cheap and abundant. It has put books, magazines, and newspapers into the hands of practically every one who is able to read. From its two original uses -- writing and printing -- the uses of paper have spread to cover hundreds of daily needs,

ROEN: Say, what about grass and annual crop plants, for paper. I've heard that these raw materials are even cheaper than wood. Is that true?

CURRAN: Only partly true, and only in the case of a few special products. You see, Mr. Roen, the essential substance of paper is cellulose. Wood is the most compact and the cheapest source of cellulose yet discovered.

ROEN: What's it like? Cellulose.

CURRAN: Well, it's something like cotton. In fact, cotton is cellulose in a fairly pure form. Wood is full of it. Wood fiber is largely made of cellulose.

ROEN: Could you say, then, that wood is largely made up of little pieces of cotton, stuck together?

CURRAN: You might not be so far wrong, at that.

ROEN: Maybe I've discovered something!

CURRAN: Well, you've learned something.

ROEN: How do you make pulp out of wood?

CURRAN: Wood pulp falls into two main divisions, mechanical and chemical. To make mechanical pulp, the wood is simply fed to a wet grindstone, and the fibers are torn loose and floated away as pulp. Chemical pulps are quite different. They're made by cooking wood, in the form of chips, with chemicals, acid or alkali.

ROEN: And I suppose different chemicals affect the final product -- But how?

CURRAN: Well, in the same way your dough ingredients make cake or cornbread out of flour or meal. You use chemicals to suit.

ROEN: That's plain enough. Sometimes I want cake, and sometimes I'd rather have cornbread.





CURRAN: You want different kinds of paper for different purposes. Just for illustration, take this sheet of typewriter paper you have here. This is a good piece. It's tough, fairly hard, with lots of snap and firmness to it. These qualities are what you get in a high-grade bleached sulphite paper, generally from spruce.

ROEN: Then my typewriter paper came from somebody's spruce forest.

CURRAN: Quite likely. Now let's look at your book. (What -- You still reading that long novel?)

ROEN: Still and yet. What kind of tree is it made of? (Or forest, I should say, considering the length of the novel.)

CURRAN: Well, let's look at the paper. Here -- feel it. Soft in texture, rather light in weight, nontransparent, soft white in color. This book paper is largely bleached soda pulp, made from short-fibered hardwoods, like poplar.

ROEN: (Well, it's a "poplar" book.) Now what kind of tree furnished the wood pulp for this heavy brown paper bag?

CURRAN: In all probability this is a specimen of unbleached sulphate, or brown kraft, made in such large quantities from the southern pines. Many papers are mixtures. This newspaper you have here is a mixture -- three parts mechanical pulp to one part chemical. The chemical pulp makes it stronger.

ROEN: Doctor Curran, you've got me interested. If I'd come up to Madison, would you show me through your paper-pulp laboratory?

CURRAN: Certainly. Be glad to. When can you come?

ROEN: Next week? Thursday or Friday?

CURRAN: Fine. You come along, and we'll show you how we're experimenting with different kinds of American woods -- to see what kinds of paper they're best fitted for.

ROEN: To increase our paper production, you mean?

CURRAN: Not primarily; that will take care of itself. What we're interested in is to broaden the forest base of paper production -- to distribute the burden from a few woods and share it with others that we have more of.

ROEN: That sounds like a big job.

CURRAN: It undoubtedly is. But the United States wouldn't need to look to foreign countries for a single stick of pulpwood if we could turn our logging wastes and our less-used species into the kinds of paper the market demands.

ROEN: That would mean a great deal in an economic way.



CURRAN: It would mean added values for forestry. Employment for thousands of workers. New jobs for capital. New support for rural and town communities through tax revenues. For example, take the fairly recent pulp and paper development in the South. One of our first pieces of research, when the Forest Products Laboratory was founded in 1910, was to pulp and process a typical selection of southern pines. The influence of that research has been steady and continuous in the growth of the southern industry. I am sure you have also heard of the splendid work of Dr. C. H. Herty at Savannah, Georgia, on the southern pine problem. His sudden death on July 27 is a distinct loss to the South and to the nation.

ROEN: I am shocked to hear of Dr. Herty's passing. Didn't I see something about him recently in the news reels?

CURRAN: Very likely. Did you hear that a mill is now being built in East Texas to make newsprint? A year from now you may be reading the headlines on what was once a pine tree.

ROEN: Will it be the same kind of paper we have now?

CURRAN: Very much the same, but made differently. And the new method is a better forestry proposition. It's what we've been advocating for pine for many years.

ROEN: How does the forestry angle come in?

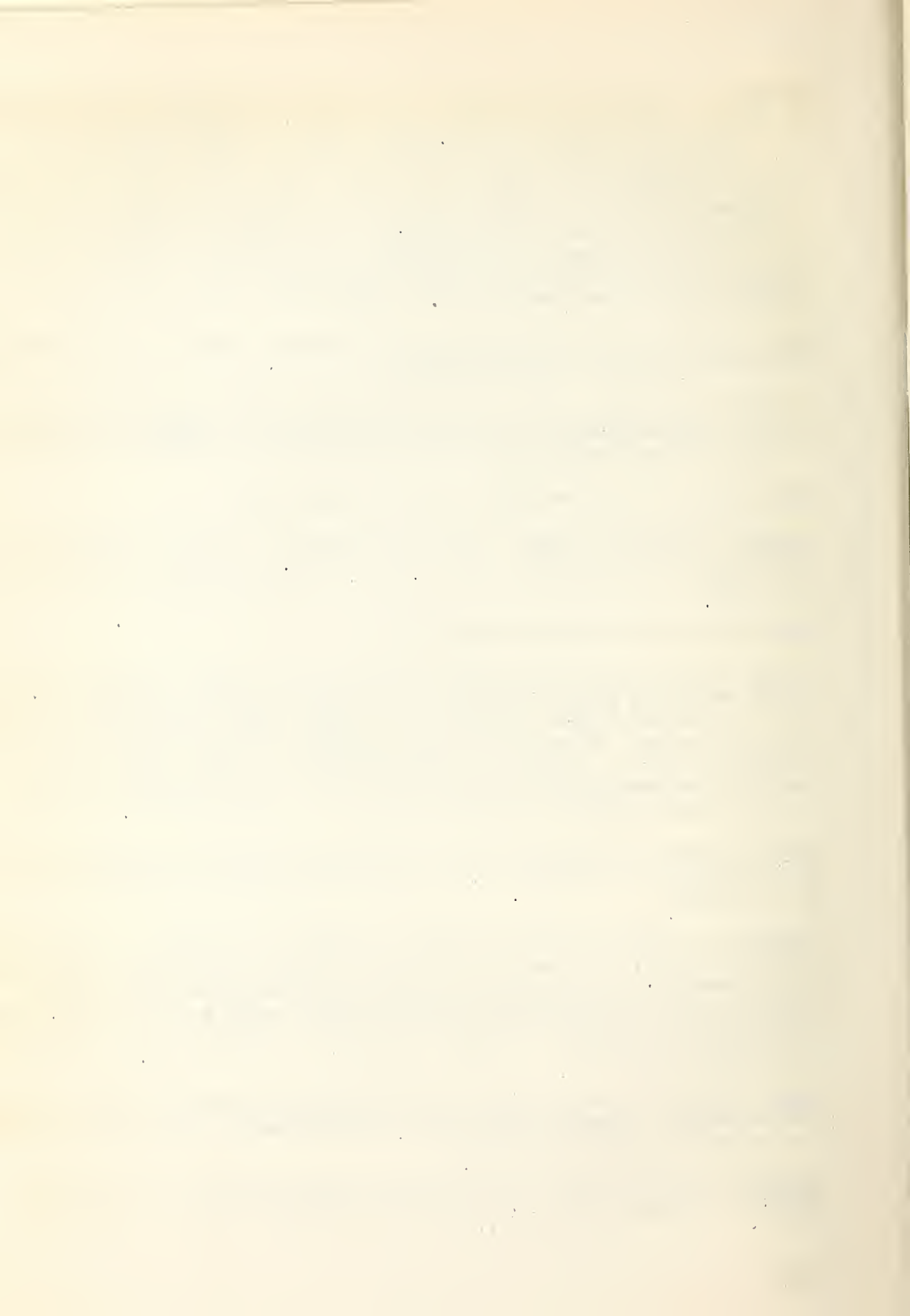
CURRAN: Simply in this way: If you use the present sulphite method, you've got to take young pines, without any heartwood. The more newsprint you make that way, the less chance you have of any young growth coming along to re-stock your woods. By using the sulphate method, as they intend to do at a proposed new mill in Texas, you can pulp bigger and older trees, and go easier on the young stock. Another way out is to use hardwoods. We have some interesting results in this line too.

ROEN: You know, it's not my worry -- but they say the way newspapers strip off the forests is a caution. I forget how many acres they use for one Sunday edition.

CURRAN: That proves the need of getting newsprint production on a much wider basis nationally. As a matter of fact, in the South, the Federal and State Forest Services are going after the cutting problem right at the start. They're showing the farmers that they are money behind when they strip their woodlands bare instead of marketing pulpwood as a regular crop. It figures out in dollars and cents.

ROEN: Seems to me you've given us a tremendously practical research story, Doctor Curran. I suppose woods owners in other parts of the country also have a stake in the pulpwood situation.

CURRAN: Indeed they have. The work of the Forest Service is for all the country. Our experiments have covered the pulping of over 100 different



woods. The work is divided into regular regional studies -- including the woods of the Lake States, New England, the Central region, and the Pacific Coast, as well as the South.

ROEN: Many thanks, Doctor Curran, for giving us this view of pulp and paper from American woods. I'm going to ask you a good many more questions when I make my tour of the Forest Products Laboratory next week. Would next Friday be convenient for you?

CURRAN: Friday it is. We'll be looking for you.

